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PATENT APPLICATION

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IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Barry BRONSON

Confirmation No.: 3032

Application No.: 09/851,340

Examiner: K. T. Nguyen

Filing Date: 05/09/2001

Group Art Unit: 2677

Title: WEARABLE DISPLAY AND METHOD OF DISPLAYING IMAGES USING A WEARABLE DISPLAY

Mail Stop Appeal Brief-Patents
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF APPEAL BRIEF

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on 01/18/2006.

The fee for filing this Appeal Brief is (37 CFR 1.17(c)) $500.00.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

☐ (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d)) for the total number of months checked below:

☐ 1st Month $120	☐ 2nd Month $450	☐ 3rd Month $1020	☐ 4th Month $1590

☐ The extension fee has already been filed in this application.

☒ (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account 08-2025 the sum of $ 500. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees. A duplicate copy of this sheet is enclosed.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant:	Barry BRONSON	§	Confirmation No.:	3032
Serial No.:	09/851,340	§	Group Art Unit:	2677
Filed:	05/09/2001	§	Examiner:	K. T. Nguyen
For:	Wearable Display And Method Of Displaying Images Using A Wearable Display	§	Docket No.:	10006196-1

APPEAL BRIEF

Mail Stop Appeal Brief – Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Date: January 18, 2006

Sir:

Appellant hereby submits this Appeal Brief in connection with the above-identified application. A Notice of Appeal is filed concurrently herewith.

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I. REAL PARTY IN INTEREST

The real party in interest is the Hewlett-Packard Development Company (HPDC), a Texas Limited Partnership, having its principal place of business in Houston, Texas. HPDC is a wholly owned affiliate of Hewlett-Packard Company (HPC). The Assignment from the inventor to HPC was recorded on July 30, 2001, at Reel/Frame 012013/0538 The Change of Name document from HPC to HPDC was recorded on September 30, 2003, at Reel/Frame 014061/0492.

II. RELATED APPEALS AND INTERFERENCES

Appellant is unaware of any related appeals or interferences.

III. STATUS OF THE CLAIMS

Originally filed claims:	1-21.
Claim cancellations:	16-19.
Added claims:	22-26.
Presently pending claims:	1-15 and 20-26.
Presently appealed claims:	1-15 and 20-26.

IV. STATUS OF THE AMENDMENTS

No claims were amended after the final Office action dated November 1, 2005.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

The specification discloses a display and method of displaying images.[1] At least some of the illustrated embodiments are methods comprising generating an inner region display signal of the frame of an image,[2] determining at least one of a motion or color characteristic from the inner region display signal,[3] generating an outer region display signal of the frame of the image using the at least one motion or color characteristic,[4] displaying an inner region of the frame of the image on a display using the inner region display signal,[5] and displaying an outer region of the frame of the image on the display using the outer region display signal.[6] The outer region of the display is of substantially lower resolution than the inner region.[7]

Other illustrative embodiments are a wearable display[8] comprising a display comprising a plurality of pixels,[9] the display having an inner region and an outer region of substantially lower resolution than the inner region,[10] and a controller operably coupled to the display.[11] The controller generates an inner region display signal,[12] and an outer region display signal using at least of one of a motion, brightness or color characteristic from the inner region display signal.[13]

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[1] Specification Title.

[2] Specification Page 11, lines 17-19. Hereinafter, citations to the Specification will take the shorthand form (Page xx, lines xx-xx). Thus, this illustrative citation in shorthand form reads (Page 11, lines 17-19). *See also*, Figure 9.

[3] (Page 13, lines 5-7); Figure 10.

[4] (Page 11, lines 19-21); Figure 9.

[5] (Page 12, lines 24-25); Figure 9.

[6] *Id.*

[7] (Page 8, line 3 – Page 11, line 14); Figure 8.

[8] (Page 6, line 16).

[9] (Page 9, line 21 – Page 10, line 6).

[10] (Page 8, line 3 – Page 11, line 14); Figure 8.

[11] (Page 6, lines 21-22); Figure 6.

[12] (Page 11, lines 17-19); Figure 9.

[13] (Page 11, lines 19-21); Figure 9.

Yet still other illustrative embodiments are a wearable display[14] comprising a display comprising a plurality of pixels,[15] the display having an inner region and an outer region of substantially lower resolution than the inner region,[16] and a controller operably coupled to the display.[17] The controller generates an inner region display signal,[18] and an outer region display signal using at least of one of a motion, brightness or color characteristic from the inner region display signal.[19] The outer region is of less than 5 cycles per degree resolution and comprises an array of red, blue and green lights.[20]

Other illustrative embodiments are a wearable display[21] comprising a display comprising a plurality of pixels,[22] the display having an inner region and an outer region of substantially lower resolution than the inner region,[23] and a controller operably coupled to the display.[24] The controller generates an inner region display signal,[25] and an outer region display signal using at least of one of a motion, brightness or color characteristic from the inner region display signal.[26] The outer region comprises an array of white lights.[27]

Yet still other illustrative embodiments are methods of displaying images using a wearable display comprising determining an amount of distortion for image signal data (the distortion acting to distort a source image conveyed by the

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[14] (Page 6, line 16).

[15] (Page 9, line 21 – Page 10, line 6).

[16] (Page 8, line 3 – Page 11, line 14); Figure 8.

[17] (Page 6, lines 21-22); Figure 6.

[18] (Page 11, lines 17-19); Figure 9.

[19] (Page 11, lines 19-21); Figure 9.

[20] (Page 10, lines 19-21, lines 24-25).

[21] (Page 6, line 16).

[22] (Page 9, line 21 – Page 10, line 6).

[23] (Page 8, line 3 – Page 11, line 14); Figure 8.

[24] (Page 6, lines 21-22); Figure 6.

[25] (Page 11, lines 17-19); Figure 9.

[26] (Page 11, lines 19-21); Figure 9.

[27] (Page 11, lines 5-6).

image signal data so that a field of view of the source image is expanded),[28] adjusting the image signal data so that the source image conveyed by the image signal data is distorted according to the determined amount of distortion,[29] and generating a display signal using the adjusted image signal data, and displaying a distorted image on a display by using the display signal.[30]

Other illustrative embodiments are wearable display comprising a display for displaying images,[31] a controller operably coupled to the display (wherein the controller obtains image signal data from a source image signal and generates a display signal for display by the display),[32] and optics arranged in the wearable display.[33] The optics modify an image displayed by the display by distorting an outer region of the image by a greater amount than an inner region of the image so that a field of view of the image is increased.[34]

Yet still other illustrative embodiments are an apparatus comprising a display device having an inner region and an outer region of substantially lower resolution than the inner region,[35] and a controller coupled to the display device.[36] The controller generates an inner region display signal that couples to the inner region, and an outer region display signal that couples to the outer region.[37]

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[28] (Page 17, lines 14-16); (Page 16, lines 3-11); Figure 15.

[29] (Page 17, lines 17-19); Figure 15.

[30] (Page 18, lines 3-4); Figure 15.

[31] (Page 18, lines 17-19); Figure 16.

[32] (Page 15, line 21 – Page 16, line 2).

[33] (Page 18, lines 19-21); Figure 16.

[34] *Id.*

[35] (Page 8, line 3 – Page 11, line 14); Figure 8.

[36] (Page 6, lines 21-22); Figure 6.

[37] (Page 11, lines 17-21); Figure 9.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-15 and 20-26 are unpatentable over Hartmut (Japanese publication number 09-220200) in view of Ketrenos (U.S. Pat. No. 6,788,311).

VII. ARGUMENT

A. Discussion of the Cited References

All the pending claims stand rejected as allegedly obvious over Hartmut in view of Ketrenos. In order to assist the Board in its review, Appellant presents the following discussion of Hartmut and Ketrenos. The specific shortcomings of the rejections using Hartmut and Ketrenos are discussed subsequent sections.

Hartmut appears to be directed to a display unit for a high-resolution matrix image obtained by medical diagnostic equipment.[38] In particular, Hartmut discloses a CRT 12 upon which medical images are displayed.[39] Rather than displaying an entire medical image in its full resolution, Hartmut discloses an eyepiece camera 3 which detects the location on the CRT 12 at which the user is looking,[40] and the system provides the highest resolution of the medical image at the location where the user looks.[41] Moreover, the system provides lower resolution outside this region where the user looks.[42] Inasmuch as Hartmut discloses the use of the eyepiece camera 3 so as to know where the user is looking on the CRT, it follows that Hartmut's CRT 12 has the ability to display high resolution across the entire CRT 12, and it is merely the resolution of the image applied that is lowered before being displayed.

Ketrenos is directed to displaying data on lower resolution displays.[43] In particular, Ketrenos discloses a system where data intended to be displayed on a high resolution computer monitor is displayed on lower resolution television monitor.[44] Ketrenos describes two methods to perform this task. The first method is to display only a portion of the overall image on the lower resolution display; however, while the portion of the image shown may have full resolution,

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[38] Hartmut Title.

[39] Hartmut Paragraph [0012], [0006].

[40] Hartmut Paragraph [0012].

[41] Hartmut Paragraph [0007].

[42] *Id.*

[43] Ketrenos Title.

[44] Ketrenos Abstract.

other portions of the image may not be visible at all.[45] The second method is to display the entire image on the lower resolution monitor.[46] A user may then select portions of the image to be expanded so that full detail of the image is visible, giving the appearance of local zoom effect.[47] It follows from both these alternatives that the lower resolution monitor of Ketrenos has the same resolution across the monitor.

B. Claims 1-4, 8-10, 22-23 and 26

Claims 1-4, 8-10, 22-23 and 26 stand rejected as allegedly obvious over Hartmut and Ketrenos. Claim 8 is representative of this grouping of claims. The grouping should not be construed to mean the patentability of any of the claims may be determined in later actions (*e.g.*, actions before a court) based on the groupings. Rather, the presumption of 35 USC § 282 shall apply to each of these claims individually.

Claim 8 specifically recites, "A wearable display, comprising: a display comprising a plurality of pixels, **the display having an inner region and an outer region of substantially lower resolution than the inner region**... ." Appellant respectfully submits that Hartmut and Ketrenos fail to teach or suggest such a system. In particular, in Hartmut it appears that the user has the ability to increase the resolution of any portion of the image as it appears on the CRT, and thus Hartmut's CRT (as opposed to the image on the CRT) has uniform resolution. Likewise, the display of Ketrenos appears to have uniform (albeit lower) resolution across the entire screen, and selected portions of the image are shown in higher resolution akin to a local zoom effect. Thus, even if considered together, Hartmut and Ketrenos fail to teach a "display having an inner region and an outer region of substantially lower resolution than the inner region." For this reason alone the rejection of this grouping of claims should be reversed and the claims set for issue.

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[45] Ketrenos Col. 3, lines 10-16; Figures 4A and 4B.

[46] Ketrenos Col. 3, lines 33-45.

[47] Ketrenos Col. 3, line 46 – Col. 4, line 17; Figures 5A and 5B.

Representative claim 8 further recites, "a controller operably coupled to the display, wherein the controller generates an inner region display signal, and an outer region display signal using at least of one of a motion, brightness or color characteristic from the inner region display signal." The Office action of November 1, 2005 admits that Hartmut falls short with respect to this limitation,[48] and attempts to rely on Ketrenos column 4, lines 8-26;[49] however, the cited location (reproduced immediately below) appears to be directed only to color corrections within the magnified region.

> Next, as indicated in block 30 in FIG. 2, **within the selected region for magnification, color corrections may also occur.** For example, color saturation levels may be automatically adjusted based on known distortion from converting to interlaced display. While high resolution computer displays can display bright red pixels next to bright white pixels, these juxtapositions may result in jitter and bleeding in interlaced displays. Color saturation levels may be automatically adjusted to avoid this effect in the local region identified by the viewer. In addition, colors which are known not to convert correctly from high resolution displays to interlaced displays may be adjusted within the local region.[50]

For this reason, Hartmut and Ketrenos fail to teach or fairly suggest generating "an outer region display signal using at least of one of a motion, brightness or color characteristic **from the inner region display signal.**"

Based on the foregoing, Appellant respectfully submits that the rejections of the claims in this first grouping be reversed, and the claims set for issue.

C. Claims 5, 7, 11, and 25

Claims 5, 7, 11 and 25 stand rejected as allegedly obvious over Hartmut and Ketrenos. Claim 11 is representative of this grouping of claims. The grouping should not be construed to mean the patentability of any of the claims may be determined in later actions (*e.g.*, actions before a court) based on the groupings.

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[48] Office action dated November 1, 2005, Page 2, last paragraph.

[49] Office action dated November 1, 2005, Page 3, first paragraph.

[50] Ketrenos Col. 4, lines 8-26 (emphasis added).

Rather, the presumption of 35 USC § 282 shall apply to each of these claims individually.

Claim 11 specifically recites, "wherein the outer region comprises: an array of red, blue and green lights." Appellant respectfully submits that Hartmut and Ketrenos fail to teach or fairly suggest such a system. As discussed above, the displays of Hartmut and Ketrenos appear to have uniform resolution. The location of Ketrenos cited by the Office action discusses that high resolution displays can have red pixels next to white pixels,[51] but Ketrenos (alone or considered with Hartmut), fails to teach or suggest an outer region of lower resolution comprising "an array of red, blue and green lights."

Based on the foregoing, Appellant respectfully submits that the rejections of the claims in this grouping be reversed, and the claims set for issue.

D. Claims 6, 12 and 24

Claims 6, 12 and 24 stand rejected as allegedly obvious over Hartmut and Ketrenos. Claim 12 is representative of this grouping of claims. The grouping should not be construed to mean the patentability of any of the claims may be determined in later actions (*e.g.*, actions before a court) based on the groupings. Rather, the presumption of 35 USC § 282 shall apply to each of these claims individually.

Claim 12 specifically recites, "wherein the outer region comprises an array of white lights." Appellant respectfully submits that Hartmut and Ketrenos fail to teach or fairly suggest such a system. As discussed above, the displays of Hartmut and Ketrenos appear to have uniform resolution. The location of Ketrenos cited by the Office action discusses that high resolution displays can have red pixels next to white pixels,[52] but Ketrenos (alone or considered with Hartmut), fails to teach or suggest an outer region of lower resolution comprising "an array of white lights."

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[51] Ketrenos Col. 4, lines 23-25.

[52] Ketrenos Col. 4, lines 23-25.

Based on the foregoing, Appellant respectfully submits that the rejections of the claims in this grouping be reversed, and the claims set for issue.

E. Claims 13-15

Claims 13-15 stand rejected as allegedly obvious over Hartmut and Ketrenos.[53] Claim 13 is representative of this grouping of claims. The grouping should not be construed to mean the patentability of any of the claims may be determined in later actions (*e.g.*, actions before a court) based on the groupings. Rather, the presumption of 35 USC § 282 shall apply to each of these claims individually.

Claim 13 specifically recites, "determining an amount of distortion for image signal data, the distortion acting to distort a source image conveyed by the image signal data **so that a field of view of the source image is expanded.**" Appellant respectfully submits that Hartmut and Ketrenos fail to teach or fairly suggest such a system. In Hartmut it appears that the CRT screen is capable of displaying the entire image in full resolution, but Hartmut elects not to display the entire image in full resolution so as to reduce the time to render the display.[54] In Ketrenos it appears that the lower resolution CRT is unable to show the high resolution image in its entirety at full resolution.[55] Thus, neither Hartmut nor Ketrenos have a need to "determining an amount of distortion for image signal data, the distortion acting to distort a source image conveyed by the image signal data **so that a field of view of the source image is expanded**." For this reason, even if Hartmut and Ketrenos are considered together (which Appellant does not admit is proper), the two references fail to teach the claim limitations.

Based on the foregoing, Appellant respectfully submits that the rejections of the claims in this grouping be reversed, and the claims set for issue.

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[53] The Office action dated November 1, 2005 indicates at numbered paragraph 2 that claims 13-15 are rejected as allegedly obvious over Hartmut and Ketrenos, but the Office action does not have a specific paragraph addressing claim 13 however, the paragraph spanning pages 3 and 4 of the Office action, which is facially directed to claim 20, appears in actuality to be directed to claim 13.

[54] *See, e.g.*, Hartmut Paragraph [0006].

[55] *See, e.g.*, Ketrenos Figures 4A and 4B

F. Claims 20-21

Claims 20-21 stand rejected as allegedly obvious over Hartmut and Ketrenos. Claim 20 is representative of this grouping of claims. The grouping should not be construed to mean the patentability of any of the claims may be determined in later actions (*e.g.*, actions before a court) based on the groupings. Rather, the presumption of 35 USC § 282 shall apply to each of these claims individually.

Claim 20 specifically recites, "optics arranged in the wearable display, wherein the optics modify an image displayed by the display by distorting an outer region of the image by a greater amount than an inner region of the image **so that a field of view of the image is increased**." Appellant respectfully submits that the Office action dated November 1, 2005 fails to make a *prima facie* case of obviousness regarding claim 20. In particular, the Office action fails to cite any portion of Hartmut or Ketrenos for a teaching of optics, much less optics that distort "an outer region of the image by a greater amount than an inner region of the image so that a field of view of the image is increased."

Based on the foregoing, Appellant respectfully submits that the rejections of the claims in this grouping be reversed, and the claims set for issue.

VIII. CONCLUSION

For the reasons stated above, Appellant respectfully submits that the Examiner erred in rejecting all pending claims. It is believed that no extensions of time or fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Hewlett-Packard Development Company's Deposit Account No. 08-2025.

Respectfully submitted,

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IX. CLAIMS APPENDIX

1. (Previously presented) A method of displaying frames of images comprising:

generating an inner region display signal of the frame of an image;

determining at least one of a motion or color characteristic from the inner region display signal;

generating an outer region display signal of the frame of the image using the at least one motion or color characteristic;

displaying an inner region of the frame of the image on a display using the inner region display signal; and

displaying an outer region of the frame of the image on the display using the outer region display signal, wherein the outer region of the display is of substantially lower resolution than the inner region.

2. (Previously presented) The method of claim 1, wherein generating an outer region display signal further comprises:

adjusting the outer region display signal so that the outer region of the frame of the image blends with the inner region of the frame of the image.

3. (Previously presented) The method of claim 1, wherein displaying an outer region of the frame of the image further comprises:

displaying an outer region of less than 5 cycles per degree resolution.

4. (Previously presented) The method of claim 3, wherein displaying an inner region of the frame of the image further comprises:

displaying a center of the inner region of at least 15 cycle per degree resolution.

5. (Previously presented) The method of claim 3, wherein displaying an outer region of the frame of the image further comprises:

illuminating an array of red, blue and green lights.

6. (Previously presented) The method of claim 1 wherein displaying an outer region of the frame of the image further comprises illuminating an array of white lights.

7. (Previously presented) The method of claim 1, wherein displaying an outer region of the frame of the image further comprises:

shining red, blue and green lights into a user's field of view.

8. (Previously presented) A wearable display, comprising:

a display comprising a plurality of pixels, the display having an inner region and an outer region of substantially lower resolution than the inner region; and

a controller operably coupled to the display, wherein the controller generates an inner region display signal, and an outer region display signal using at least of one of a motion, brightness or color characteristic from the inner region display signal.

9. (Original) The display of claim 8, wherein the outer region is of less than 5 cycles per degree resolution.

10. (Original) The display of claim 8, wherein the inner region is of at least 15 cycle per degree resolution at a center of the inner region.

11. (Original) The display of claim 9, wherein the outer region comprises:

an array of red, blue and green lights.

12. (Previously presented) The display of claim 8 wherein the outer region comprises an array of white lights.

13. (Previously presented) A method of displaying images using a wearable display, comprising:

determining an amount of distortion for image signal data, the distortion acting to distort a source image conveyed by the image signal data so that a field of view of the source image is expanded;

adjusting the image signal data so that the source image conveyed by the image signal data is distorted according to the determined amount of distortion;

generating a display signal using the adjusted image signal data; and

displaying a distorted image on a display by using the display signal.

14. (Original) The method of claim 13, wherein the step of adjusting the image signal data comprises:

creating a distortion ratio between an inner region and an edge of the source image of between 2:1 and 20:1.

15. (Original) The method of claim 14, comprising:

sampling a source image signal to obtain the image signal data.

16.-19. (Cancelled).

20. (Original) A wearable display, comprising:

a display for displaying images;

a controller operably coupled to the display, wherein the controller obtains image signal data from a source image signal and generates a display signal for display by the display; and

optics arranged in the wearable display, wherein the optics modify an image displayed by the display by distorting an outer region of the

image by a greater amount than an inner region of the image so that a field of view of the image is increased.

21. (Original) The wearable display of claim 20, wherein a distortion ratio between a portion of the outer region and a portion of the inner region is between 2:1 and 20:1.

22. (Previously presented) An apparatus comprising:
a display device comprising having an inner region and an outer region of substantially lower resolution than the inner region; and
a controller coupled to the display device, wherein the controller generates an inner region display signal that couples to the inner region, and an outer region display signal that couples to the outer region.

23. (Previously presented) The apparatus as defined in claim 22 wherein the controller uses at least of one of a motion, brightness or color characteristic from the inner region display signal to generate the outer region display signal.

24. (Previously presented) The apparatus as defined in claim 22 further comprising:
wherein the inner region of the display device comprises a plurality of pixels; and
wherein the outer region of the display device comprises an array of white lights.

25. (Previously presented) The apparatus as defined in claim 22 further comprising:
wherein the inner region of the display device comprises a plurality of pixels; and
wherein the outer region of the display device comprises an array red, green and blue lights.

26. (Previously presented) The apparatus as defined in claim 22 wherein the display device is a wearable display device.

X. EVIDENCE APPENDIX

None.

XI. RELATED PROCEEDINGS APPENDIX

None.